





# Water Quality Standards

Alaska Department of Environmental Conservation  
Division of Water  
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Updates to Human Health Criteria  
RTOC Teleconference November 2014

# Division of Water

Mission Statement:

Improve and Protect Alaska's Water Quality

How?

- **Establishes standards for water cleanliness**
- Regulates discharges to waters and wetlands
- Provides financial assistance for water and wastewater facility construction and waterbody assessment and remediation
- Trains, certifies, and assists water and wastewater facility system operators
- Monitors and reports on water quality



# Water Quality Standards

- 💧 The foundation of state/tribal water quality-based pollution control programs under the Clean Water Act (CWA)
- 💧 Are designed to protect public health or welfare
- 💧 Provide maximum (generally) concentration of a particular pollutant in the water

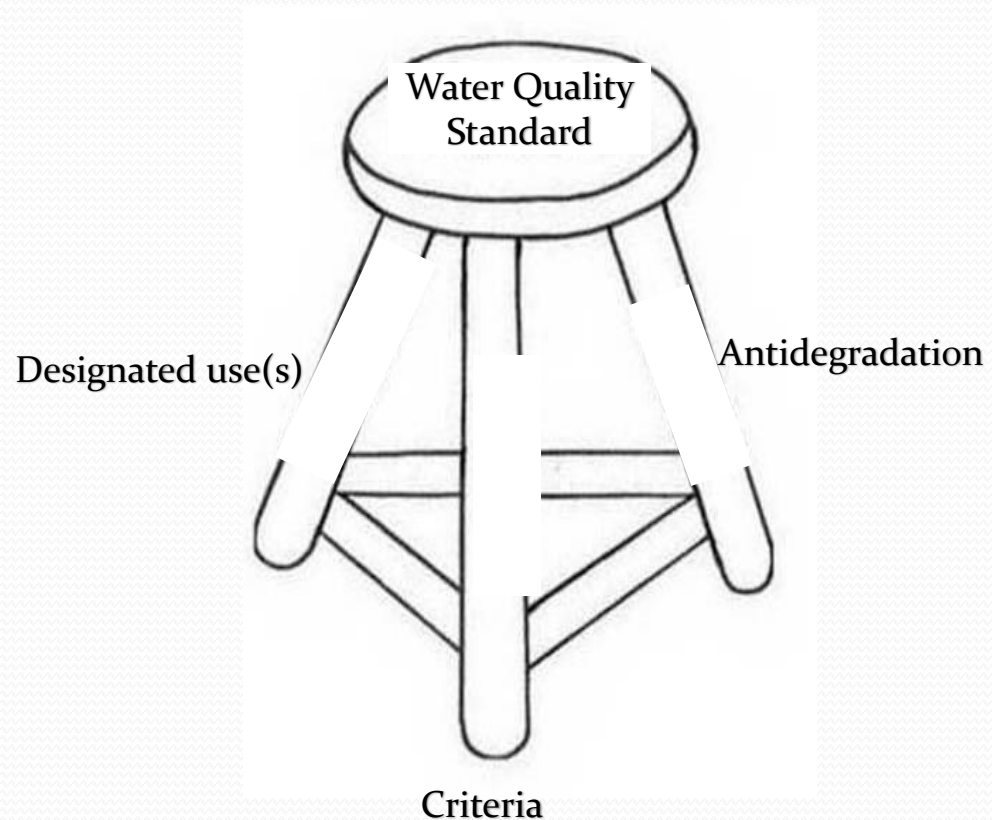


# Water Quality Standards (cont.)

- 💧 Tell us how clean our waters need to be
- 💧 Help identify polluted waters; clean-up polluted water, and make sure our waters don't get more polluted
- 💧 Provide a regulatory basis for controls beyond technology-based limits
- 💧 The foundation of state/tribal water quality-based pollution control programs under the Clean Water Act (CWA)
- 💧 And many more things...



# Foundation of a Water Quality Standard



*-Defined-*

1. **Designated Uses** – how water is used (*e.g.* recreational, industrial, aquatic life)
2. **Criteria** - are numeric and narrative limits
3. **Antidegradation** -protects high quality waters



# What are Human Health Criteria (HHC)?

- 💧 HHC are numeric criteria in the water quality standards
- 💧 HHC are designed to minimize the risk of adverse effects occurring to humans
  - 💧 from chronic (lifetime) exposure
  - 💧 toxic and deleterious substances
- 💧 Actual values are located in the Water Quality Criteria TOXICS Manual

toxicbook (14).xls [Compatibility Mode] - Excel

FILE HOME INSERT PAGE LAYOUT FORMULAS DATA REVIEW VIEW

Clipboard Font Alignment Number Styles Cells Editing

Q59 : X ✓ fx updated Oct 2010

A B C D E F G H I J K L M N O P Q

Enter the appropriate **Hardness** value for the water you are interested in: **30** mg/L as CaCO3 \*\*\*\*

**Calculation of Hardness**  
adapted from Standard Methods, Method 2340B  
input calcium and magnesium concentrations:

Calcium	3.28
Magnesium	10.4
Resulting Hardness=	51.0

color key: orange highlighting: the most stringent criterion  
yellow highlighting: the criterion depends on the hardness

all units in micrograms per liter (ug/L)

all units in micrograms per liter (ug/L)

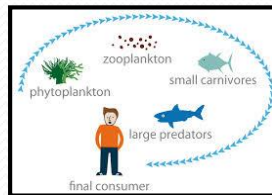
Parameter	Drinking Water	Stockwater	Irrigation Water	Aquatic Life-Fresh Water										Human Health Criteria for NonCarcinogens	
				Acute					Chronic					Water + Aquatic Organisms	Aquatic Organisms Only
				the criterion is	as	using the conversion factor	the criterion is	as	the criterion is	as	using the conversion factor	the criterion is	as		
alkalinity									20,000 minimum						
aluminum			5,000	750	TR				87	TR					
antimony	6													14	4,300
arsenic	10	50	100	340	TR	1	340	D	150	TR	1	150	D		
barium	2,000														
beryllium	4		100												
boron			750												
cadmium	5	10	10	0.63	TR	0.994	0.62	D	0.11	TR	0.959	0.11	D		
chloride				860,000					230,000						
chlorine (total residual)				19					11						
chromium (total)	100		100												
chromium III				672.62	TR	0.316	212.55	D	32.15	TR	0.86	27.65	D		
chromium VI		50		16	D				11	D					
cobalt			50												
copper			200	4.50	TR	0.960	4.32	D	3.33	TR	0.960	3.20	D	1,300	
cyanide (as free CN)	200 *			22 **					5.2 **					700	220,000



# Human Health Criteria (HHC)

What does it mean?

HHC are designed to **minimize the risk** of adverse effects from chronic (lifetime) exposure to contaminants through **the ingestion of drinking water and the consumption of fish (FCR)** obtained from surface waters.



Other factors that are considered when developing HHC are body weight,  
\*bioaccumulation, amount and size of fish eaten, geographic location, etc....

\*Bioaccumulation is the process a chemical accumulates and keeps accumulating in living organisms

# Why is Alaska interested?



- 💧 Alaska wants its WQS to be protective of human health
- 💧 More recent studies have determined that the FCR used in the current HHC formula may not accurately reflect consumption rates in Alaska
- 💧 Stakeholders have called for DEC to review and revise the HHC
- 💧 DEC wants any revisions to be scientifically defensible



## Key Points

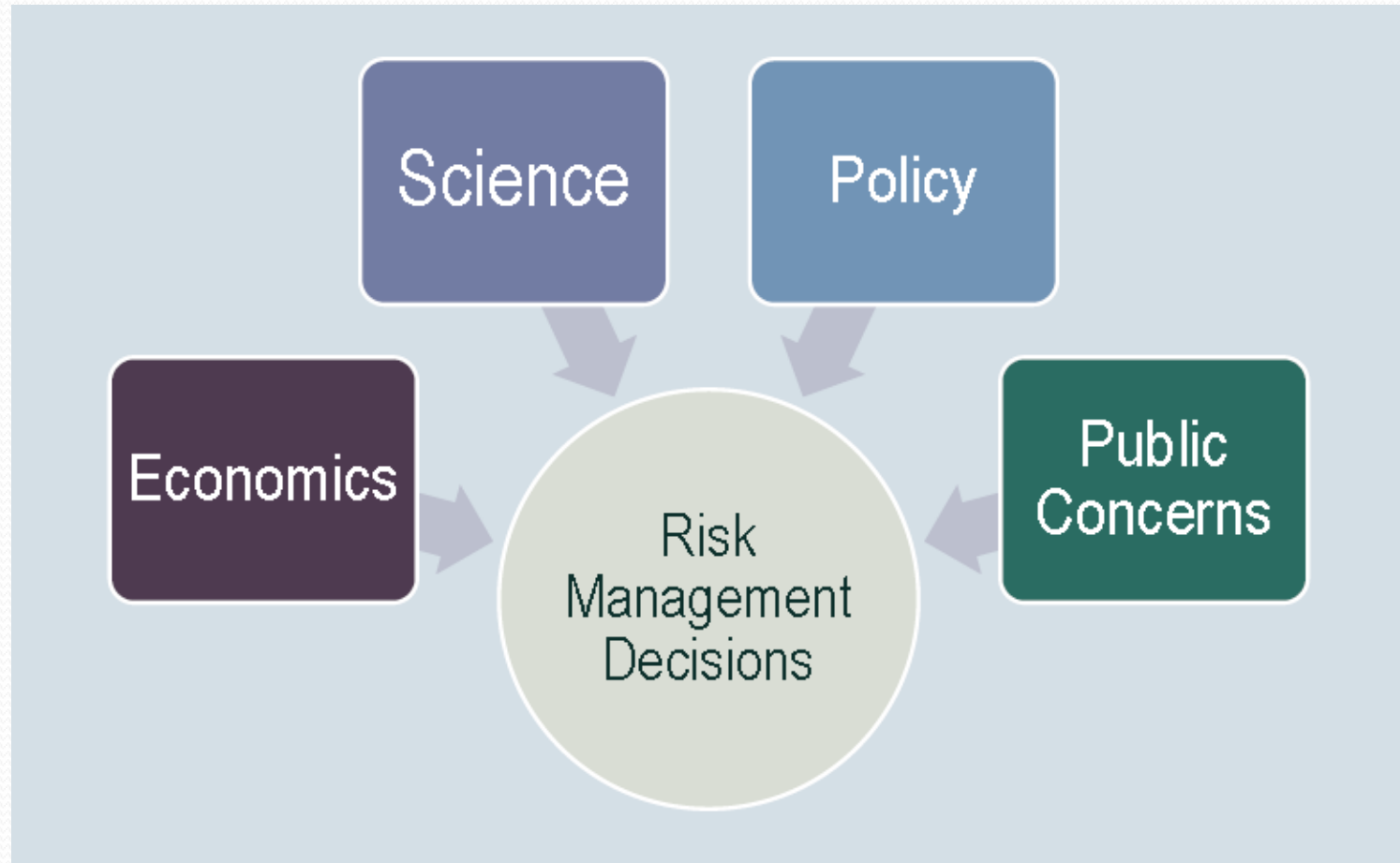
- 💧 The state recognizes that having an accurate Fish Consumption Rate (FCR) is important for the protection of human health and water resources
- 💧 ADEC-Environmental Health determined that most fish have low to no detectable levels of contamination from pollutants
- 💧 Potential points of concern are addressed through Fish Advisories issued by ADEC-EH and Department of Health and Social Services
- 💧 Alaska has tools available to increase/decrease water quality standards and fish consumption rates using site specific criteria
- 💧 There is **not a crisis**



# A Sample of General Questions to consider in the coming months...

- 💧 How will DEC determine the best **approach(s)** to address this issue?
- 💧 How will DEC ensure that it is being **inclusive and transparent** in its efforts?
- 💧 How will DEC consider **implementation** of new criteria; and
- 💧 Why this effort may take several years to complete?

# Decisions on Fish Consumption Rates will take into account multiple factors





# What is DEC doing now?

- 💧 Defining the process, issues, and challenges
  - 💧 Working carefully to establish an approach that is appropriate for Alaska
- 💧 Considering how it will conduct public outreach about this issue
  - 💧 Potential HHC Conference in Spring 2015
- 💧 Recognizes the importance of fish consumption and the challenges of establishing reliable sources of data
  - 💧 HHC Literature Review



# What is DEC doing now?

- 💧 Researching efforts of other coastal states
- 💧 Considering implementation early in the process
- 💧 Preparing to public notice 2015-2017 triennial review period





# Triennial Review Process

The Clean Water Act (CWA) requires that States and authorized tribes "shall from time to time, but at least once every three years, hold public hearings for the purpose of reviewing applicable water quality standards and, as appropriate, modifying and adopting standards".





# What is the Triennial Review?

- 💧 States and tribes, with input from the public, review their existing WQS to ensure that they meet the requirements of the CWA and also the needs of the state or tribe.
- 💧 Helps ensure that pollution limits are integrating the latest science, technology, and policy requirements.
- 💧 Engages all interested stakeholders when collecting and evaluating information to help increase the effectiveness of this process



# Thank you for your time

Questions?  
Comments?  
Thoughts?

Please direct them to:

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**(907) 465-5185**